Department of Natural Resources

Fiscal 2015 Agency Technology Plan

April 2014

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Overview

Department of Natural Resources (DNR) is dedicated to the conservation, protection, effective management, and maintenance of Wisconsin's natural resources. DNR is responsible for implementing the laws of the state and, where applicable, the laws of the federal government that protect and enhance the natural resources of our state. DNR is charged with the responsibility for coordinating the many disciplines and programs necessary to provide a clean environment, and a full range of outdoor recreational opportunities for Wisconsin citizens and visitors.

Information technology (IT) influences every activity in daily operation of the DNR and its lines of business (programs). Our many disciplines add complexity to managing our technology environment. Our customers have high expectations and their roles vary from citizens, accountants, biologists, scientists, statisticians, technicians, engineers, law enforcement, project managers, program managers, customer support, tribes, and other governmental organizations. The DNR integrates its business and IT strategic planning processes to ensure the alignment of IT directions with business goals. The Strategic Information Technology Plan should be viewed in context of the Department's business plan. It serves as our roadmap for leveraging technology in our business processes and is intended to guide the development of more detailed implementation plans. As IT improves, DNR will be able to perform our mission increasingly effectively. Leveraging technology in our business processes requires:

- Complete understanding of the Department's mission
- Employment of best business practices
- Implementation of structured and standardized architectures
- Process-driven business and systems development
- Partnership with all stakeholders
- Clarity of the business requirements
- Effective management and protection of information as a strategic resource

IT Goals

Strategic Action Plan

DNR's Action Plan lists strategic goals that serve as guideposts for IT resource investments, and are consistent with the statewide enterprise IT initiatives. The Plan establishes specific agency-wide actions to help us achieve our vision: *We excel at protecting and managing natural resources while supporting the economy and the well-being of our citizenry.*

The Action Plan is intended to work in concert with each of the Division's goals and strategic plans. It establishes actions and performance measures in four target areas:

1) Staff Work Environment
2) Customer Satisfaction
3) Fiscal Resources
4) Efficiency and quality of operations, products & services

FY 2015 IT Goals

Key IT goals for the DNR in FY 2015 include:

Improved Bandwidth

Improved bandwidth is an overwhelming need in our regions, affecting our ability to collaborate state-wide, and to offer cost-effective centralized IT services.

State Transforming Agency Resources (STAR) implementation

Support of this statewide consolidation and upgrade of finance, budget, procurement, business intelligence and human resource systems is expected to consume significant agency resource time.

Mobile Solutions

DNR recognizes the need to support mobile access of our customers, and our staff. Specification of mobile platforms, design of mobile apps, and planning for mobile access of our web sites is a high priority.

Reduced IT Security Risk

DNR will be updating key IT security documentation, including action plans, and participating in Continuity of Operations (COOP) activities.

IT Service Management (Cherwell) Implementation

The implementation of Cherwell will enable improved performance management, change management, service catalog, reporting, and other tools for improved IT services.

Enterprise IT Strategic Guiding Principles

- **Identification of long-term sustainable funding for IT systems development, staff and training is a priority**

- **Senior leadership will provide over-sight of the Department's IT infrastructure:**
  - ✓ An IT Oversight Board is established;
  - ✓ IT information and resources will be exchanged across the agency to ensure opportunities for partnership, collaboration, efficiency and shared funding.

- **The Department is a geographic-based agency which utilizes automated business systems based on locational data. To ensure we are cost-effective, we will:**
  - ✓ Maximize use of common platforms;
  - ✓ Ensure existing applications have access to standard software.

- **The Department integrates data to benefit Wisconsin's people, environment, and economy. To accomplish this, we will:**
  - ✓ Maximize use of common platforms on which our IT systems are built;
  - ✓ Ensure our data systems are seamless to our customers;
  - ✓ Strive to make data and information easily available to the public;
  - ✓ Design systems that provide information to support science-based decisions;
  - ✓ Develop data models to collect relevant information from diverse data systems.

- **The Department develops data systems that support efficient public and private business operations. To accomplish this, we will:**
  - ✓ Maximize use of common interfaces for our customers;
  - ✓ Develop common, customer-friendly interactive IT systems;
  - ✓ Develop tools to continuously survey customers to assess business needs and customer satisfaction.

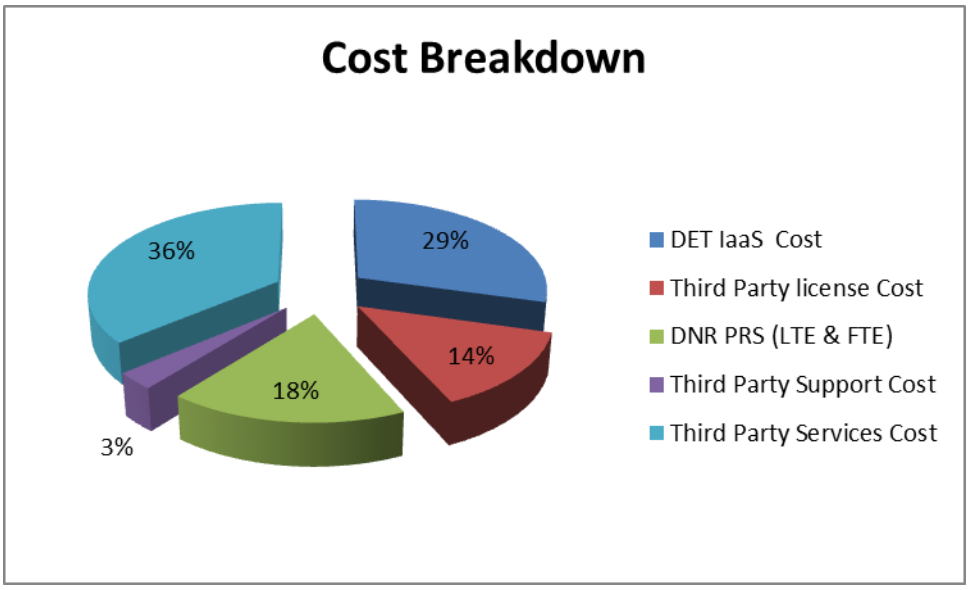
- **The Department strives to stay on the 'value-edge' of technology. To accomplish this, we will:**
  - ✓ Keep our IT systems current to ensure quality performance;
  - ✓ Set consistent systems maintenance standards for all programs;
  - ✓ Keep our staff trained;

- **The Department maximizes return-on-investment from our IT investments. To accomplish this, we will:**
  - ✓ Calculate and track return-on-investment of our data systems;
  - ✓ Use key performance indicators for transparency and accountability.

IT Budget

Agency IT budget is provided below. The Bureau or Technology Services is the central IT organization, and thus is broken out of its CAES division figures for the purpose of granularity. Note: BTS figures include cell phone and landline costs of $1,684,803.

Program	FY2015 Budget
Bureau of Technology Services (BTS)	$ 7,387,000
Air, Waste, and Remediation & Redevelopment Division	$ 931,361
Customer & Employee Services Division	$ 482,609
Forestry Division	$ 952,000
Land Division	$ 1,185,000
Office of Business Support and Sustainability	$ 160,000
Water Division	$ 220,000
Total	**$ 11,317,970**



IT Staffing

Current agency-wide staff figures are provided below.

FTE: 132.98 (Includes vacant positions)
LTE: 50
Contractors: 31
Open positions: 24

The staffing breakdown is as follows:

Org/Division	Staff Total
Secretary's Office	8.08
Air, Waste, and Remediation & Redevelopment	11.5
Customer and Employee Services	71.9
Forestry	10
Land	4
Water	27.5
Grand Total	**132.98**

Agency Projects

The following IT projects expected to cost $1,000,000 or more, or are otherwise high profile. This includes projects that are starting, ongoing or ending anytime between July 1, 2014 and June 30, 2015.

Project Name:

Private Lands Cutting Notices

1) Project Type: ☐ New FY15 ☒ Ongoing

2) Project Description:

Cutting notices are often received by the department in various forms of completeness. For notices that are not filled out completely or with enough detail to make approval possible, some DNR staff are completing the form for the applicant by filling in missing information or adding enough detail to make the notice approvable. Feedback is not always provided back to applicant and their agent so they will likely commit the same errors in the future. Providing an electronic submission form with automated QA/QC checks will save the forester time in dealing with incomplete forms and will allow them to focus on approval of the form based on complete content.

3) Project Schedule	Start: May 15, 2014	Expected Completion: 1 year duration (focusing on this project)	
4) Application Platform:	☐ Mainframe	☐ Windows Multi-Tier	☐ Client-Server
	☒ Web Internet	☒ Web Intranet	☐ Physical
	☐ Consolidated	☐ Co-located	☐ Virtual
5) Application Type:	☒ State Developed	☐ SaaS	☐ Transfer
	☐ COTS	☐ Vendor Managed/hosted	☐ Other (specify) _____

6) Technical Architecture Components:

The application employs a 3-layer architecture of data, business, and user interface layers. The application was designed under the assumption that the Interface Control, Business Objects, and Data Access would execute on the same physical server.

A) <u>User Interface Layer</u>

The user interface layer utilizes ASP.NET web forms. Where the .NET Framework does not provide the required UI functionality, 3rd party server controls were purchased to provide the desired user interface experience.

The user interface consists of browser-side and server-side code. The web server determines what code to send to the browser and then the browser executes that code to render the interface to the user. The interaction between browser and server is via HTTP protocol, and the responsibilities of each sub-layer are as follows:

- **Interface** - the interface sub-layer utilizes Javascript and HTML to render the user interface to the user in a standard web browser. Once the interface is rendered, the user interacts with the controls to submit requests back to the interface control code.
- **Interface Control** - the interface control sub-layer takes requests from the interface sub-layer and instantiates business objects as necessary to complete the action that was initiated by the user. This was designed to be executed on a server running under an Internet Information Services (IIS) worker process. This code was developed in Visual Basic .NET against the .NET Framework 2.0.

B) Business Layer

The business layer consists of business objects which are specific to the application (ex. StandBO, PropertyBO, etc.). These are instantiated from the interface control and provide the business rules for the application. Some business objects interact with the data layer to retrieve or save information from/to the database.

The business objects are written in Visual Basic .NET, and although could theoretically run in any context that supports the .NET Framework 2.0, have been designed to run on a web server running IIS.

C) Data Layer

The data layer is called from the business layer and is responsible for returning data from the database or saving data to the database.

The data access objects are written in Visual Basic .NET, and although could theoretically run in any context that supports the .NET Framework 2.0, have been designed to run on a web server running IIS.

The database is an Oracle 11g relational database management system. It is spatially enabled with ESRI ArcSDE.

Core Technologies

- Oracle 11g database – for storage of tabular application and GIS application data.
- Microsoft Internet Information Server 7.5.
- Python – used for geo-processing scripts.
- Visual Basic.NET – used in server side code for tabular application.
- SSRS 2008 – used for generating and managing reports that are integrated with the tabular application.

7) Estimated Total Project Hours: 9,800 – 11,750	8a.) Estimated Total Project Cost: $630,000 - $750,000 (includes contractor/staff time, plus fringe)

8) Related Projects and Dependencies:
- WisFIRS Private Lands Management application.

9) Project Sponsorship and Funding *(please complete the information below)*

Executive Sponsor: Paul DeLong Division: Forestry

Business Sponsor: Wendy McCown Division: Forestry

Senior Project Manager: Ann Schachte IT Authority:

Is Full Funding for Project Approved/Secured? ☒ Yes ☐ No

Funding Source for the Project: ☐GPR $_____ ☐PR $_____ ☒SEG $ 630,000 - $750,000

☐FED $_____

10) Issues that may influence successful execution of the project:

Not all of the efforts being proposed will start in FY15. We will be making that determination over the next few months.

- Potential changes in MFL Legislation.
- Updates needed to other parts of the Forestry Division, competing for resource needs.
- Availability of program staff to work on the project.
- Overall priority of this effort in relationship to the other efforts being proposed.

Project Name:

Automated Customer Service Business System Replacement

Project Type: ☐ New FY15 ☒ Ongoing

Project Description:

The primary business function of this project is recreational licensing and vehicle registrations, natural resources citations, safety education, and wildlife harvest registrations. Creating an integrated system which will allow DNR to maintain one comprehensive customer database and purchasing system. Additional business function integrations may be negotiated and implemented as needed. The physical architecture will reside in a virtual environment at the Femrite Data Center.

Project Schedule	Start: 12/1/2013	Expected Completion: 3/1/2016	
Application Platform:	☐ Mainframe	☒ Windows Multi-Tier	☐ Client-Server
	☒ Web Internet	☐ Web Intranet	☐ Physical
	☐ Consolidated	☐ Co-located	☒ Virtual

Application Type:	☐ State Developed	☐ SaaS	☐ Transfer
	☐ COTS	☐ Vendor Managed/hosted	☒ Other (specify) Vendor Developed/Managed State hosted _____

Technical Architecture Components:

DET, in consultation with Contractor, is responsible for implementing virtual and physical three tier architecture dedicated to the ACSBS system. This system will use virtual machines that are a part of the physical hosts use in the WIN production environment. Additional virtual machines and hosts will be used as necessary to support the ACSBS as demanded by the application. Hosting environment for this system will be designed to support a three tier architecture where only the presentation/web layer resides in the DMZ. The application logic will be virtually and physically separated from the presentation/web layer. All data will be stored in database servers that are logically and physically separated. Both application and database servers will reside in a secure domain separated from DMZ, which disallows any direct traffic from DMZ.

Estimated Total Project Hours: estimating 8000 staff hours to project completion	Estimated Total Project Cost: There are no development costs. Contractor will receive transaction fees from each sale to recover costs. No fees will be collected until the system is fully functional. Contractor will collect fees during pilot prior to full production roll out.

Related Projects and Dependencies:

Project Sponsorship and Funding *(please complete the information below)*

Executive Sponsor: Kristy Rogers Division: Customer and Employee Services

Business Sponsor: Diane Brookbank Division: Customer and Employee Services

Senior Project Manager: Mark Rappe IT Authority:

Is Full Funding for Project Approved/Secured? ☒ Yes ☐ No

Funding Source for the Project: ☐GPR $_____ ☐PR $_____ ☐SEG $_____

☐FED $_____

Issues that may influence successful execution of the project:

Ability of system to handle high volumes of traffic, access/migration of old data, ability to run both systems in parallel during pilot, unknown functions provided by current system, fuzzy definition of scope, project direction changes or shifts, change in State's bank, resource constraints, interface integrations not defined, financial records and integrations, legislative changes, definition of training responsibilities, administration changes, potential circumvention of login security by purchasers, loss of primary funding, loss of subject matter expertise, DNR agent and non-DNR agent acceptance of new system, maintenance log functionality scope undefined, deployment plan not defined, force majeure, WI DNR process changes, warden mobility solution not defined, web browser versions/compatibility, display issues with mobile devices.

Potential Agency Projects

The following lists all potential agency IT projects expected to meet the $1,000,000 cost threshold that are in the conceptual phase, or that might be initiated in FY15 due to potential legislative changes (state or federal), or that might be dependent on securing grant funding (from a state, federal or nongovernmental organization).

Potential Project Name: ***Wisconsin Forest Inventory and Reporting System (WisFIRS) Private Lands GIS***
Description: WisFIRS Private Lands Management is an application to assist in DNR management of privately-owned forest land (Managed Forest Law (MFL) and Forest Crop Law (FCL) Administration and Financials). This system that will enable foresters to store data collected in the field, create management plans, track completed practices (e.g. timber sales), report accomplishments, calculate the financial aspects of the programs (e.g. millions of dollars collected and dispersed to municipalities annually) to name a few. Due to the importance of knowing where on the landscape practices are being done, geographical information systems (GIS) is being integrated throughout the system. WisFIRS will allow DNR and private consulting foresters to be more efficient in the administration of private forest law programs.
Anticipated Total Cost: $800,000-$970,000 (includes contractor and staff time (plus fringe))
Resourcing: SEG

Potential Project Name:

Wisconsin Forest Inventory and Reporting System (WisFIRS) Private Land Financials, Private (Tax Law) timber harvest, cost share programs

Description:

WisFIRS Private Lands Management is an application to assist in DNR management of privately-owned forest land (MFL and FCL Administration and Financials). This release adds on additional components onto the Private Lands Tabular application with the following functions:

Private Financials- Redesign of financial components, including better access to online real-time data, streamlining to improve turn-around time and reduce the number of employee hours needed to process, as well as making use of electronic payments (e.g., online payments via credit cards, direct transfers, etc.). The application supports the processing of payments to municipalities for MFL yield and withdrawal taxes; FCL severance, withdrawal and termination taxes; the annual aid payment; and the annual resource aid payment to qualifying counties. Additionally, supports the invoicing for MFL yield, withdrawal, and closed acreage fee as well as FCL severance, withdrawal and termination taxes. Interaction with the WISMART and Finance's accounts receivable systems are also involved in this sub-system. Plan prep fee for DNR prepared MFL plans.

Private Timber Harvest- Supports the private timber sale process (could be a future release depending upon time and priorities).

Cooperating Forester Management and CPW Enrollment Stewardship Plans –Similar to MFL plans but without the mandatory practices, and can be created by Cooperating Foresters. (could be a future release depending upon time and priorities).

Evaluation of online access to externals- (could be a future release depending upon time and priorities).

• Landowner entry of open/closed acre requests, withdrawals, etc.

• CPW and Coop Forester self-registration, renewals, etc. online.

• Municipality access to WisFIRS

Cost share programs– Evaluate what needs to be tracked and reports that need to be created for the Foresters to indicate when cost sharing was used and close out so we can ensure Foresters know when payments can be made.

Anticipated Total Cost: $825,000 - $985,000 (includes contractor and staff time (plus fringe))

Resourcing: SEG, FED

IT Infrastructure Projects or Expenditures

No IT infrastructure projects have been identified.

Issues

- DOA/DET service offering rates are sometimes presented with insufficient time for our programs to budget appropriately.
- DOA/DET service offering rates are often not competitive with alternative providers or in-house costs.
- DNR is challenged to hire and retain highly qualified IT staff due to the competitive market for this talent, DNR's below-market salaries, and a limited ability to offer salary increases and other incentives.
- Unforeseen changes in Federal funding could have a detrimental impact on the ability to build and maintain applications supporting programmatic needs.
- The ability to plan for workforce capacity needs is difficult because we do not always have a clear roadmap from our service and infrastructure providers, including DOA/DET.
- Procurement of IT products and services, especially cloud-based services, remains a significant challenge under the current procurement rules and using the State's standard terms and conditions.

To protect and enhance our natural resources:
our air, land and water;
our wildlife, fish and forests
and the ecosystems that sustain all life.

To provide a healthy, sustainable environment
and a full range of outdoor opportunities.

To ensure the right of all people
to use and enjoy these resources
in their work and leisure.

To work with people
to understand each other's views
and to carry out the public will.

And in this partnership
consider the future
and generations to follow.

This plan is submitted by the Wisconsin Department of Natural Resources (DNR). Preparation of this plan was coordinated by the DNR Bureau of Technology Services (BTS), with input from other DNR program application and data owners.

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